Alaska Birth Defect Reported Prevalence (per 10,000 live births), 2004-2012

Current nationally reportable major congenital anomalies (N=47)

Defect	2004-2008*	2005-2009*	2006-2010*	2007-2011	2008-2012	p-value
Anencephalus			2.0	2.5	2.1	0.8086
Anophthalmia / microphthalmia	4.1	2.7	2.0	1.4	1.6	0.0135
Anotia / microtia	2.2	3.3	3.9	3.7	4.1	0.0730
Atrail spetal defect	139.2	148.6	157.4	158.0	160.2	0.0256
Aortic valve stenosis	1.3		1.1	1.4	2.0	0.3027
Atrioventricular septal defect	5.4	6.2	6.1	7.3	6.4	0.1779
Biliary atresia	3.0	2.9	3.2	2.3	2.5	0.2249
Bladder exstrophy		1.1				
Congenital cataract	5.2	5.5	5.7	5.2	5.5	0.7660
Clubfoot				35.8	36.9	
Cleft lip alone				4.1	3.9	
Cloacal exstrophy						
Cleft lip with celft palate				7.8	8.7	
Choanal atresia	2.6	2.2	2.7	3.0	3.2	0.0916
Coarctation of the aorta	5.4	4.6	5.4	5.3	4.4	0.5386
Cleft palate alone	17.7	15.3	17.7	14.1	13.1	0.1220
Congenital posterior urethral valves				7.5	8.7	
Craniosynostosis						
Deletion 22 q11				0.9		
Diaphragmatic hernia	6.3	6.6	5.7	5.7	5.5	0.0534
Double outlet right ventricle				2.1	1.8	
Ebstein anomaly			1.4	1.2	1.6	0.6893
Encephalocele	4.8	4.4	4.1	3.2	2.8	0.0051
Esophageal atresia / tracheoesophageal fistula	2.6	2.9	2.7	2.7	2.7	0.7821
Gastroschisis				3.9	5.2	
Holoprosencephaly				9.2	10.1	
Hypoplastic left heart syndrome	2.6	2.6	2.7	2.0	1.2	0.0922
Hypospadias	51.5	54.2	54.5	58.2	58.6	0.0079
Inerrupted aortic arch				4.3	4.4	
Limb deficiencies				11.9	11.7	
Omphalocele				13.9	12.4	
Pulmonary valve atresia and stenosis	13.9	14.6	15.1	14.4	14.0	0.9832

Defect	2004-2008*	2005-2009*	2006-2010*	2007-2011	2008-2012	p-value
Renal agenesis / hypoplasia	7.2		7.5	7.8	9.1	0.1220
Rectal and large intestinal atresia / stenosis	8.9	9.5	10.4	10.5	9.9	0.1631
Small intestinal atresia / stenosis				7.5	6.6	
Spina bifida without anencephalus	7.6	6.4	5.6	3.7	2.7	0.0045
Single ventricle				1.4	0.9	
Common truncus	2.0	2.2	1.8	2.5	2.8	0.1439
Total anomalous pulmonary venous connection		2.0	2.2	1.8	1.8	0.2496
Transposition of the great arteries	4.6	4.4	4.7	4.6	3.7	0.2631
Teratology of fallot	5.9	5.5	5.6	6.0	5.3	0.5854
Trisomy 13	1.5	1.5	1.3	1.2	1.6	0.9765
Trisomy 18	2.2	2.2	1.8	2.1	2.1	0.7222
Trisomy 21 (Down syndrome)	15.8	15.9	15.6	16.2	17.8	0.1228
Turner syndrome				7.8	8.5	
Tricuspid valve atresia and stenosis	1.9	1.6	1.1	1.1		0.0530
Ventricular septal defect	98.7	102.0	99.1	101.9	101.2	0.3909

*Five-year estimates are based on historical estimates reported to the National Birth Defects Prevention Network. Although p-value estimates are provided to assess the trend (increasing or decreasing) over time, caution should be used in interpretation as data collection methods and data aggregation may vary leading to systematic differences. Further, from the 2007-2011 estimate and on reports are only included if reported before the age of three years. For conditions that tend to have a later diagnosis and reporting estimates in the more recent years may be systematically lower.

Notes:

1. Hypospadias is restricted to male births.
2. Missing data is the result of suppression and non-data collection in early years.
3. p-value estimate is calculated to model the observed rates over time using a generalized linear model with a Poisson distribution and offset of the natural log (ln) of the birth population size under the form:

$$ln\frac{a}{n} = \beta_0 + \beta_1 X_1 + \ln(n)$$

The p-value estimates the probability that the observed slope is different from a slope of zero. By convention an alpha of 0.05 is used to determine significance.

p-values are only calculated for defects with 3 or more data points.

Resources

National Birth Defects Prevention Network
Centers for Diesase Control and Prevention

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Code source: `R:\ABDR\Analysis_New\ABDR_CASECONF\trend04_12.Rmd`